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1935

This Issue: Front Cover: Courtesy of Robertshaw Thermostat Company, Youngwood, Pa., Wilcolator Company, Newark, N. J., and Consolidated Gas Company, New York. The devices shown on the front cover are among those which have been, or are being, standardized by the Sectional Committee Z-21 on Gas Burning Appliances. See article on page 53.

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No. 3

23 Gas-Burning Appliances Get ASA Approval

Standard requirements for six additional kinds of accessories for use with gas-burning appliances have been approved by the American Standards Association. Twenty-three standards have been approved by the ASA since the work on gas appliances was initiated under its procedure with the American Gas Association as sponsor.

Because accessories depend for successful op-

This committee wrote the requirements for gas appliances and accessories which have been approved as American Standards by the American Standards Association.

R. B. Harper, American Gas Association, *Chairman.*

R. M. Conner, American Gas Association, *Secretary.*

American Gas Association, Manufacturers Section, **C. S. Bagg, W. E. Derwent, B. B. Kahn, F. A. Lemke, H. W. O'Dowd, E. L. Payne, A. Stockstrom.**

American Gas Association, Operating Companies, **E. L. Hall, R. B. Harper, W. S. Walker, H. E. G. Watson, L. B. Wilson, Jr., C. C. Winterstein.**
American Home Economics Association, **Alice L. Edwards.**

American Institute of Architects, **F. Leo Smith.**

Associated Factory Mutual Fire Insurance Companies, **A. L. Cobb.**

Heating, Piping and Air Conditioning Contractors National Association, **Walter L. Fleischer, George P. Nachman (alt.).**

National Association of Master Plumbers of U. S., **J. L. Murphy.**

National Safety Council, **Alice L. Edwards, Curtis Billings (alt.).**

U. S. Department of Agriculture, Bureau of Home Economics, **Dr. Louise Stanley.**

U. S. Department of Commerce, Bureau of Standards, **E. R. Weaver.**

U. S. Department of Interior, Bureau of Mines, **W. P. Yant.**

U. S. Treasury Department, Bureau of the Public Health Service, **Dr. R. R. Sayers.**

The American Gas Association assumed leadership in the work.



Salesman explaining "seal of approval" certifying range to comply with minimum American Standards

eration in part on the manner of their installation in connection with the gas appliance with which they are to be used, unqualified approval is not given this type of equipment. Acceptable accessories, however, are listed as certified by the American Gas Association. The new standard requirements are, therefore, Listing Requirements, not Approval Requirements, for the following types of equipment:

Automatic Devices Designed to Prevent Escape of Unburned Gas
Automatic Main-Gas Control Valves
Relief and Automatic Gas Shut-Off Valves for Use on Water-Heating Systems
Water Heater, Gas Range, and Space Heater Thermostats
Semi-Rigid Gas Appliance Tubing and Fittings
Domestic Gas Appliance Pressure Regulators

The A.G.A. Approval Requirements Committee is a sectional committee of the American Standards Association. Following approval of the List-

ing Requirements by the committee, they were recommended to the ASA for approval as American Standard, thereby giving them national status and significance.

Mining Committee Holds Annual Meeting

E. A. Holbrook, Dean of the College of Engineering, University of Pittsburgh, was re-elected chairman of the Mining Standardization Correlating Committee of the ASA at its annual meeting on February 20, held in connection with the Annual Winter Meeting of the American Institute of Mining and Metallurgical Engineers. Lucien Eaton, Milton, Mass., and Warren R. Roberts, Roberts and Schaefer Company, Chicago, were re-elected vice-chairmen.

H. M. Lawrence, mining engineer of the American Standards Association, is secretary of the M.S.C.C.

Experts to Advise

The recent proposals made by the Safety Code Correlating Committee for the development of a national advisory committee to assist all other groups in the ASA in establishing threshold limits for toxic gases, dusts, and fumes were discussed at length. The M.S.C.C. agreed that the Chairman should contact this national advisory committee, if and when it is organized, and point out the desirability of organizing subcommittees to give special attention to dust hazards in the mineral industries.

Recent action of the Coal Division of the American Institute of Mining and Metallurgical Engineers, recommending that a proposed safety code for coal-mine ventilation be endorsed by the Board of Directors of the Institute and submitted to the ASA, was reported. These recommendations of the Coal Division are further steps in the development of recommended practices for this most important feature of coal-mine operations. Committees have been working on this problem for a number of years and several drafts have been prepared. The M.S.C.C. agreed that the Coal Division of the Institute should be congratulated on its successful efforts. It promised to give prompt attention to the proposed safety code following its submittal by the A.I.M.E.

Locomotive Work Progressing

Wm. E. Goodman, representing the National Electrical Manufacturers Association, reported by letter that the Mining and Industrial Locomotive

Section of N.E.M.A. has completed some of the highly technical items affecting operation of mine locomotives. The work of this group has advanced appreciably in the past year, and a meeting has been scheduled for March for review of the several recommendations under consideration, from which tentative draft standards may be prepared.

Ladder Code to be Revised

As a result of the pending submittal to the ASA of a revision of the general ladder safety code (A14), the Chairman was authorized to take steps for a revision of the Mine Ladder Code (M12-1928) if this should be found necessary.

Changes in the personnel of the committee were announced. W. H. Lesser, James H. Pierce and Company, Scranton, Pa., succeeded L. E. Young as one of the representatives of the American Institute of Mining and Metallurgical Engineers, and C. E. Lawall, Director of the School of Mines, West Virginia University, Morgantown, West Virginia, was appointed an alternate for the A.I.M.E.

Richard Mays, deputy secretary of Mine Bituminous, Uniontown, Pa., has been appointed as an alternate by the Mine Inspectors Institute of America.

The Mining Standardization Correlating Committee is directly responsible for all of the mining standardization work under the procedure of the American Standards Association. Sectional committees report the results of their work to the Committee which in turn reports to the Standards Council. In supervising the work of the sectional committees it prevents duplication of effort and conflicting requirements in standards prepared by different committees.

A.S.T.M. Bulletin Carries Draft Standard on Lead-Coated Sheets

The American Society for Testing Materials published in the January issue of the *A.S.T.M. Bulletin* a draft standard on Proposed Specifications for Lead-Coated Copper Sheets, for the information of members before the draft is submitted to the Society for promulgation as tentative standard.

The Proposed Specifications for Lead-Coated Copper Sheets are under the jurisdiction of the A.S.T.M. Committee B-2 on Non-Ferrous Metals and Alloys.

The Committee on Papers and Publications recently announced a plan for using the *Bulletin* as the medium for making available to the membership drafts of new specifications, methods of testing, and definitions.

Finds Most Industrial Plants Require Improved Illumination¹

Surveys of lighting conditions and accident records in various industrial plants in 1,249 cities in 36 states, reported recently by Charles D. Poey² before the Illuminating Engineering Society, reveal the interesting situation reproduced here in graph form.

Industrial lighting has suffered a severe decline due to economic conditions. Nearly 85 per cent use obsolete reflecting equipment. The average age of lighting equipment is 8¾ years and the average illumination intensity in working areas is at the deplorable level of 2.85 ft-candles. There are about 220,670 industrial plants in the country employing 6,984,059 workers, or 2,584,101 less persons than in 1926. Based on 3.13 kw per wage earner for

Survey in 36 States shows factory lighting requirements have declined during economic depression; 1,249 cities are covered in report

light and power (as has been shown by previous surveys), there has been a reduction of 8,088,236 kw, of which 20 per cent, or 1,617,642 kw, is in lighting.

Improved illumination reduces the expenditure of nervous energy by workers and thereby increases the productive work they can do comfortably. With industry showing a slight increase, improvement in seeing conditions should be the first thing undertaken to effect economies.

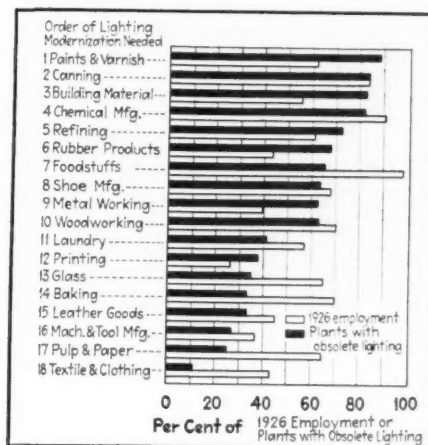
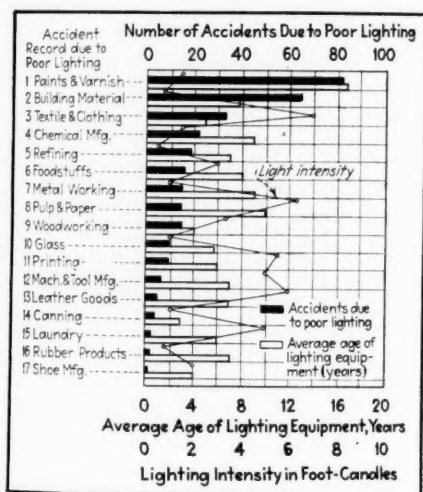
Each industry has its own peculiar illumination problems, and the electrical industry should study

Below:

The two industries which have the highest accident records have extremely low intensities of illumination and the worst has equipment averaging seventeen years age. Most of the plants, even among the industries with lower accident records, have lighting equipment between six and ten years old. Although a few industries stand out for higher light intensities than others none of them averages higher than 7 ft-candles. And observe the industries using only ¾ to 2 ft-candles—a twilight zone.

Below:

Observe particularly the rank of industries having obsolete lighting equipment and then compare with the accident records due to poor lighting, the average illumination intensity and the average age of the lighting equipment. From 50 to 87 per cent of the first eleven groups of industrial plants have obsolete lighting.



¹ Electrical World, Nov. 24, 1934.

² Manager Lighting Bureau, New York & Queens Electric Light & Power Company.

them separately and present the solution of each class to their respective national trade associations and local groups, Mr. Poey recommends.

During the last twelve months, Mr. Poey reports, 2,303 industrial plants (12 per cent of the total) relighted. Of these, 66 per cent used general lighting, 20 per cent local lighting and 24 per cent general plus local lighting. Plus lighting was virtually unknown five years ago, but today it is an important factor in industrial illumination.

During the 1933-34 activities 84 per cent of the active utilities used Weston kits and 96 per cent incorporated painting and maintenance schedules in their recommendations. In New York City they are working with the State Labor Board and also with insurance companies to get a reduction in industrial insurance premiums as a reward for installing good lighting. The co-operation of local industrial plant safety committees and contractors and jobbers is also being secured.

Bureau of Standards Publishes Revised Gas Service Standards

The National Bureau of Standards recently issued a revision of its Standards for Gas Service, which contain technical information on the regulations covering the distribution and methods used in charging for gas by utilities, and also a discussion of conditions leading to satisfactory service.

Varying bases of fixing the price at which gas is sold are explained through typical examples, charts, and tables. Emphasis is laid on the importance of regulations which will provide for prices based on the heat content rather than on the more unsatisfactory volume basis customarily used.

This particular point is of more importance with natural gas, which now constitutes the major portion of gas sold to the consuming public. A minimum standard of heating value such as is usually established for manufactured gas is unsuitable for natural gas.

The maintenance of service conditions, composition of the gas, and adjustment of appliances, meter testing, and adjustment of bills are all fully discussed and explained.

A summary is given of all existing State regulations relating to gas, so arranged that it is easy to compare the rules on any subject. Another summary indicates what gas companies, themselves, regard as good practice. There is also a description of the properties, sources, and methods of manufacture of the numerous kinds of gas which go to make up city supplies.

This publication presents an up-to-date summary of present practice and calls attention to the

The Code of Lighting: Factories, Mills, and Other Work Places, approved by the American Standards Association, gives in detail a description of lighting conditions which are essential for safe and efficient work.

The Code was prepared by a committee of 22 members, representing lighting and electrical engineers, architects, mechanical engineers, electric light associations and companies, governmental officials, accident boards and commissions, building owners and managers, insurance companies, electrical manufacturers, safety engineers, and U. S. Government departments.

The committee is working under the leadership of the Illuminating Engineering Society.

variety of regulations under which natural and manufactured gas is marketed in the United States. It is of particular importance at this time because the American Society for Testing Materials has in the organization stage a new standing committee to develop standard methods for testing gas. On this committee representatives of producing and consuming groups, together with Government regulatory bodies and technical societies, will co-operate.

A. C. Fieldner, chief engineer of the Experiment Station, U. S. Bureau of Mines, is serving temporarily as chairman.

The Circular, C405, a volume of 258 pages, can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the American Standards Association, at 20 cents per copy.

duPont to Test Products For Effects on Health

The Haskell Laboratory of Industrial Toxicology, established by the duPont company for the purpose of thoroughly testing, from the health standpoint, all duPont products before they are placed on the market, was opened February 5 at Wilmington. Another function of the laboratory will be to test the possible effects of new products upon the health of employees during the manufacturing process.

Dr. W. F. von Oettingen, a graduate of the Universities of Jena, Goettingen and Heidelberg, is the director.

ASA Approves Revised Standard for Shafting

The American Standards Association has approved the American Standard for Shafting and Stock Keys (B17.1-1934). This standard is a combination of four American Standards previously approved, with certain changes and additions, as follows:

Table 1, Finished Steel Shafting, is a revision of the American Tentative Standard B17a-1924, Cold Finished Shafting. The series of transmission shafting sizes given in the 1924 edition has been extended by the sizes $6\frac{1}{2}$, 7, $7\frac{1}{2}$, and 8 in., and the series of machinery shafting sizes, by the addition of the sizes $6\frac{1}{4}$ to 8 in., inclusive, stepping up by $\frac{1}{4}$ inch.

Table 2, Plain Parallel Stock Keys, corresponds to the American Tentative Standard B17b-1925, Square and Flat Stock Keys, in which the side of the square key and the width of the flat key for the shaft diameters $1\frac{5}{16}$ and $1\frac{3}{8}$ in. have been changed from $\frac{3}{8}$ in. to $\frac{5}{16}$ in. A series of eight large keys, ranging from $1\frac{3}{4}$ by $1\frac{1}{4}$ to 6 by 4 in., has been added in Table 3. These keys are not given in relation to any specific shaft diameters.

Tables 4 and 5 relate to Plain Taper Stock Keys and are the revised American Tentative Standard B17d-1927. A revision was made in that the range of shaft diameters from $1\frac{5}{16}$ to $1\frac{3}{4}$ in., inclusive, originally covered by one square key ($\frac{3}{8}$ by $\frac{3}{8}$ in.) and one flat key ($\frac{3}{8}$ by $\frac{1}{4}$ in.) was divided into two ranges, $1\frac{5}{16}$ to $1\frac{3}{8}$ in., inclusive, and $1\frac{3}{8}$ to $1\frac{3}{4}$ in., inclusive, the side of the square key, and the width of the flat key being reduced to $\frac{5}{16}$ in., for the smallest of these two ranges. Also, a new series of key lengths is given for the $1\frac{5}{16}$ to $1\frac{3}{8}$ in. range, in Table 5.

Tables 6 and 7, on Gib-Head Taper Stock Keys are the revised American Tentative Standard B17e-1927. Here again, the shaft diameter range $1\frac{5}{16}$ to $1\frac{3}{4}$, inclusive, has been split into two ranges, as indicated above, and the dimensions for the range $1\frac{5}{16}$ to $1\frac{3}{8}$ in., inclusive, are:

Square type: Key: $\frac{5}{16}$ by $\frac{5}{16}$ in.; gib head: $\frac{9}{16}$ by $1\frac{3}{32}$ in.

Flat type: Key: $\frac{5}{16}$ by $\frac{1}{4}$ in.; gib head: $\frac{3}{8}$ by $\frac{5}{16}$ in.

Key lengths for this range have been added in Table 7 of the new standard.

The revision of the four original standards was made by ASA sectional committee B17 on Standardization of Shafting, sponsored by the American Society of Mechanical Engineers.

Copies are expected to come from the press at an early date and will be available from the American Standards Association Library.

Variety of Interests Is On Shafting Committee

Under the leadership of the American Society of Mechanical Engineers, which is sponsor for the work of the committee on Shafting, a number of different industries is represented on the committee. The members of the committee are:

Cloyd M. Chapman, American Society of Mechanical Engineers, *Chairman*.

C. B. LePage, American Society of Mechanical Engineers, *Secretary*.

American Society of Mechanical Engineers,
Alphonse A. Adler, Albin H. Beyer, James E. Bushnell, Cloyd M. Chapman, Henry J. Eberhardt, George N. Van Derhoef, Louis W. Williams
American Gear Manufacturers Assn., *R. B. Zerfey*
American Marine Standards Commission, *H. C. E. Meyer*

American Petroleum Institute, *Edgar E. Greve*
American Society for Testing Materials, *J. J. Shuman*

Cold Finished Steel Bar Institute, *E. T. Ickes*
National Electrical Manufacturers Assn., *R. W. Owens*

Printing Press Manufacturing Assn., *J. R. Tomlin*
Society of Automotive Engineers, *Clarence W. Spicer*

Society of Naval Architects and Marine Engineers,
H. C. E. Meyer
Member-at-large, *Lester C. Morrow*

Heating and Ventilating Guide for 1935 Issued

The 1935 *Guide*, published by the American Society of Heating and Ventilating Engineers, has just been published. This reference work and text, the thirteenth to be issued, has retained the basic and fundamental data and includes changes to cover new developments. More than 200 specialists have contributed to the 1935 *Guide*.

The book contains three divisions: Technical Data, pp 1 to 706, with 41 chapters, covers heating, air conditioning, cooling, insulation and ventilation. A chapter on sound control includes descriptions of machinery and instruments needed for the various systems.

Wholly new this year, in addition to an inserted psychrometric chart, is the section called Problems in Practice which supplements chapters 1 to 40.

The catalog data section has 224 pages. A roster of members of the A.S.H.V.E., with a summary of committees and officers, is included.

There are 1024 pages in the *Guide 1935*; American Society of Heating and Ventilating Engineers, 51 Madison Avenue, New York, \$5.00.

Laundry Owners Adopt Standards For "Approved Laundry" Program

Industry finds certification of quality of work done by commercial laundries shows gratifying profits

DURING the 20 years between 1909 and 1929 the laundry industry grew from \$104,000,000 annually to \$541,000,000. The major interest in those years was in expansion of production facilities and volume. With the decline in buying power during the depression, attention has been largely focused on eliminating waste and greater plant efficiency.

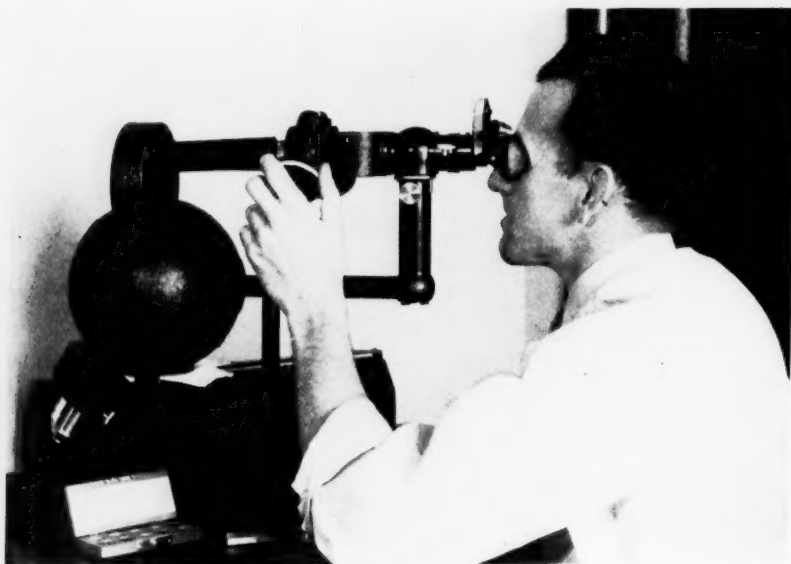
Now, however, the industry, according to the Laundryowners National Association, feels the need for a new goal. The industry will merchandise *quality*. Through a new "Approved Laundry" program based on standards developed by the American Institute of Laundering, the industry pledges itself to quality work.

The Institute is the research division of the Laundryowners National Association of the United States and Canada. Its big "proving and im-

proving station" at Joliet, Illinois, was erected in 1930 at a cost of \$1,000,000. It includes research laboratories, a complete commercial power laundry serving the city of Joliet, consultation staff offices, Vocational Training School, student training laundry, and equipment for testing fabrics under actual laundering conditions. The Director of the Department of Engineering, Wendell W. Holmquist, is in charge of the inspections to determine whether laundries qualify for the "Approved Laundry" designation. This activity is under the supervision of Lloyd A. Peck, General Manager of the Laundryowners National Association.

For years, the laundry industry has been wrestling with the problem of general dissatisfaction of laundries as a whole, induced by the housewife's disappointment with the work of a particular establishment. Unquestionably prejudice is one of the greatest barriers to laundry service. An unfortunate experience will be multiplied in effect many times, and the influence of the dissatisfied customer may be far-reaching. The demand for some sort of identification plan has been growing constantly.

Laundryowners in New Jersey and Pennsylvania



Whiteness reflectancy tests being made of sample laundry work, collected from "approved laundries" at the Laundryowners National Association's headquarters. Laundries seeking "approval" must show no more than 5 per cent loss in whiteness reflectancy in test pieces after 50 launderings

have for several years conducted "certification" plans, covering the actual washing process, sanitation and "housekeeping", but not including finishing processes such as ironing flat-work and pressing or hand-ironing wearing apparel. About 50 laundries in each state have the "certified laundry" emblem.

Buffalo Laundries Start

The approval idea on a nation-wide basis was given fresh impetus about two years ago by a group of laundries in Buffalo: To distinguish their group of plants from so-called "hand" laundries, that is, firms or individuals merely operating a pick-up and delivery service and farming out the actual laundry work, the term "Approved Laundry" was selected. An identifying emblem was adopted and copyrighted, and 12 laundries formed the "Approved" group in Buffalo.

Upon publicizing the phrase "Approved Laundry", the public began to ask "What do you mean by Approved? By whom are you Approved?" In order to obtain an impartial, authoritative source of approval, these laundries asked for the endorsement of the American Institute of Laundering, because Institute formulas and methods were being generally used, and because the Institute enjoyed national prestige in the textile and home economics fields.

By official action, delegates to the 50th Annual Convention of the Laundryowners National Association in October, 1933, voted to try out an "Approved Laundry" program, using Buffalo as a "laboratory" in developing an industry-wide program.

Basis for Approval

Early in 1934 Mr. Holmquist made thorough and unbiased inspections of these plants. A comprehensive set of standards was adopted and laundries which did not measure up to every detail were given an opportunity to correct those practices which were below par.

The response of the public was notable. In March, 1934, Approved Laundries in Buffalo showed a sales increase of 11 per cent over March, 1933; in April, 9 per cent; in May, 13 per cent; and in June, 10 per cent.

Individual laundries participating in the advertising of Approved Laundry Service in Buffalo registered increases as high as 26 per cent. The general average for the entire country for the same period, according to figures compiled by the Laundryowners National Association, was approximately 4 per cent better than the previous year.

Continuous advertising and rigid maintenance of the quality standards set up by the Institute have enabled the Buffalo Approved Laundry group to continue its progress, and local laundryowners not in the group have begun to feel the public's demand for certified quality work, based upon standards. In fact, there have been requests from those who refused to enter the Approval plan at its outset, but who are eager now to obtain Approval.

Authorization for National Application of Plan

Encouraged by the results of its "local laboratory," delegates to the 51st Annual Laundryowners National Convention in October, 1934, voted authorization to the headquarters' staff to proceed with the Approval program on a national basis.

Testing tensile strength of samples laundered 50 times. Maximum loss of strength permissible is 18 per cent



A revised code of standards has been drawn up, and field engineers are now being assigned to the Approval inspections. Field service men on the Pacific coast have already inspected more than a dozen laundries, while several laundries in the East have successfully complied with all requirements at the other end of the continent.

Approval is not granted to a laundry permanently. Test bundles are checked quarterly by the Institute, and reinspections at least twice a year, without advance notice, are provided for. The emblems and other identifying insignia are leased to the laundry, and may be withdrawn should the laundry fail to maintain any of its standards in accordance with Approved Laundry requirements.

The standards are sufficiently high so that the best laundries will be willing to have other Approved Laundries classed with them. At the same time, there is still ample leeway for those laundries wishing to render a De Luxe quality service.

Standards Are Mandatory

One important point is that approval is given on a basis of compliance with all mandatory standards. There is no grading of these mandatory provisions. *The laundry either does or does not pass.* It was felt that an over-all numerical basis would permit too great a variation in quality because the numerical variation might be concentrated on a few important items which would



make the laundry service entirely unsatisfactory to the public, and thus injure the prestige of every Approved Laundry in that community. In the case of certain processes the percentage basis is used, such as in the finishing of shirts, where points are allowed for each operation totaling 100. The average of shirts graded must equal 90 per cent or over.

Prolongation of fabric life is assured by a provision that the tensile strength loss for white as well as colored work shall not exceed 18 per cent for 50 washings. At the same time, the washing must be done thoroughly, since not more than 5 per cent decrease in whiteness reflectancy is permitted in the 50 washings test. Sanitation is assured by the provision that the bacterial content of the last bath shall be equal to or less than that contained in the original water supply used by the laundry.

Equipment Must Be Efficiently Used

Compliance with Approved Laundry standards is largely a matter of proper utilization of present equipment and supplies, rather than making large expenditures for new machinery. Although certain of the requirements may mean a small capital investment or slightly more productive labor, compliance is not a serious financial burden. But it does demand alert, efficient management and unremitting insistence on quality workmanship in every phase of laundry production.

British Committee Will Study Uniform Street Lighting Rules

The Minister of Transport of Great Britain has set up a Departmental Committee "to examine and report what steps could be taken for securing more efficient and uniform street lighting, with particular reference to the convenience and safety of traffic."

According to an article in a recent issue of the English journal *World Power*, the administrative difficulties of securing uniformity in lighting levels, light distribution, and suspension methods are very great. In London, for instance, there are 35 separate public lighting authorities.

Apart from the fact that thousands of miles of street and road, if lighted at all, are lit at intensities only suitable for horse-drawn traffic, the article says, the principal causes of strain upon the vehicle driver are the many changes in the type of road lighting. Expert opinion has long been agreed that what is necessary is a system of classifi-

cation of all streets, roads, and highways into a small number of types, based upon traffic utilization and the adaptation of lighting systems, standardized as to intensity and method, to these types.

No real measure of safety at night will be secured until a uniform series of lighting standards can be made compulsory, and enforced all over the country, *World Power* believes.

U.S.S.R. Index of Standards Is Available from ASA Office

The 1934 Index of all of the U.S.S.R. standards, published in Russian, has been received by the American Standards Association. A complete file of all the standards listed in the Index also in Russian is available in the ASA office. The Index, or any of the standards, will be loaned upon request.

ASA Approves First Four Standards On Electrical Insulating Materials

by

R. E. Hess and J. W. McNair¹

Fundamental work on materials approved as American Standards through A.S.T.M., sponsor

The first four standards submitted to the American Standards Association by the sectional committee on electrical insulating materials through the sponsor, the American Society for Testing Materials, were approved on January 30 as American Standard.

Three of these four standards outline test procedures. The fourth standard contains both specification requirements and methods of test.

The standards are:

1. American Standard Methods of Testing Molded Materials Used for Electrical Insulation.
2. American Standard Methods of Testing Electrical Insulating Oils.
3. American Standard Methods of Test for Resistivity of Insulating Materials.
4. American Standard Specifications for Rubber Matting for Use Around Electrical Apparatus or Circuits not Exceeding 3,000 Volts to Ground.

The sectional committee on Electrical Insulating Materials is under the sponsorship of the American Society for Testing Materials. It held its organization meeting less than a year ago. The committee was organized to fill a need which has become more and more pressing during recent years. Many associations and technical societies are concerned with standards, specifications, and methods of test for electrical insulating materials.

¹ Mr. Hess, Assistant Secretary of the American Society for Testing Materials, is secretary of the Sectional Committee on Insulating Materials. Mr. McNair is Electrical Engineer of the American Standards Association.

Wide Range of Interests Represented on Committee

Representatives of a variety of organizations interested in electrical insulation and insulating materials are members of the Sectional Committee on Electrical Insulating Materials:

H. L. Curtis, U. S. Department of Commerce—Bureau of Standards, *Chairman*.
R. E. Hess, American Society for Testing Materials, *Secretary*.

C. B. Martin, American Railway Association, Engineering Division, Electrical Section, *Vice Chairman*.

American Society for Testing Materials, *L. C. Beard, Jr., John W. Paisley, T. Smith Taylor, J. M. Weaver, J. M. Wilson, E. D. Youmans, R. E. Hess (alt.)*

American Institute of Electrical Engineers, *R. W. Atkinson, W. B. Kouwenhoven, J. A. Scott*

American Railway Association—Engineering Division—Electrical Section, *C. B. Martin*

American Railway Association—Engineering Division—Signal Section, *A. J. Patterson*

American Railway Association—Mechanical Division, *C. B. Martin*

American Railway Association—Operating Division—Telegraph and Telephone Section, *W. A. Moore*

American Transit Association, *Dwight L. Smith*

Electric Light and Power Group, *C. H. Fellows, M. F. Skinner, H. S. Vassar, A. B. Campbell (alt.)*

National Electrical Manufacturers Association, *Dean Harvey, G. E. Landt, F. S. Mapes*

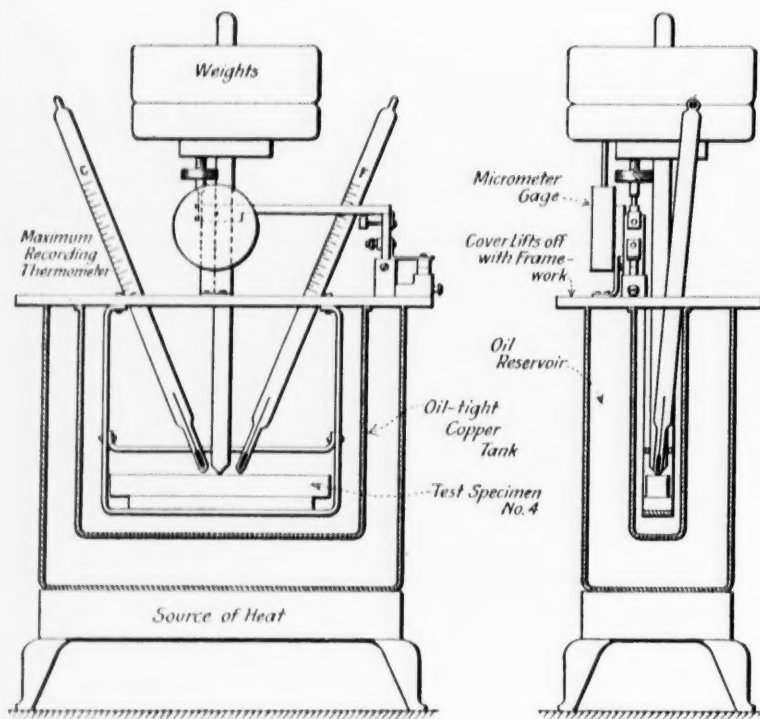
Telephone Group, *D. T. May*

U. S. Department of Commerce, National Bureau of Standards, *H. L. Curtis*

U. S. Navy Department, *Officer in Charge, Bureau of Engineering, Specification Section, Design Division*

The organization of the sectional committee under ASA procedure provides a means of contact among all of the associations interested.

One of the chief purposes of organizing the sectional committee was to expedite the submission of A.S.T.M. standard specifications and



Machine for determining distortion of molded insulating material caused by a fixed weight at varying temperatures. The American Standard Method of testing molded insulating materials used for electrical insulation (C59.1-1935) specifies that the distortion point shall be the temperature at which the specimen under test has deflected 10 mils (0.254 mm) at the center between the supports.

methods of test in the field of electrical insulation to the ASA for approval as American Standard. Another important function of the committee is to act as an agency to coordinate the work of the several A.S.T.M. committees which are developing standards for one or another of the various kinds of insulating materials. The committee's efforts thus far show that it will also justify another reason for its organization, that is, the coordination of effort among the various organizations having representatives upon the committee.

The committee is somewhat unusual in that it will not have a large number of subcommittees of its own, but will, when it is developing new specifications, generally refer the actual technical work to committees of the A.S.T.M. or other organizations. Thus it is hoped that duplication of effort will be largely eliminated.

Ready for Other Work

The standards recently approved by the ASA were submitted to the committee by the A.S.T.M. and after careful judicial review by the committee were recommended to the ASA for approval as American Standard. The committee, of course, stands ready to provide for approval as American Standard of any standards on electrical insulating

materials which may be submitted to it by organizations working in the field. In cases where the standards submitted to it do not appear to be completely satisfactory, the committee will work with the organization concerned in order to bring the standard into a form representative of the best American practice.

Wide Scope

The committee's scope is such as to enable it to handle standards for electrical insulating materials of all kinds as materials rather than as finished products. Thus, the committee would supervise the preparation of specifications for various insulating tapes used for insulating electric motors, but would not be concerned with the characteristics and tests of the insulation of the finished motor. The committee will also have charge of certain finished products such as rubber matting, rubber gloves, etc., which are not covered by existing sectional committees.

The committee is the recognized body to coordinate American opinion on electrical insulating materials for submission, through the U. S. National Committee, to the International Electro-technical Commission.

Two projects are under way at the present

time, transformer oils, and shellac and synthetic resins. The U. S. National Committee recently appointed E. A. Snyder of the Vacuum Oil Company as its point of contact with the committee on transformer oils and L. J. Cavanaugh of the General Electric Company on shellac and synthetic resins.

Early Activity

American Standard Methods of Testing Molded Materials Used for Electrical Insulation—One of the first activities undertaken by the American Society for Testing Materials Committee D-9 on Electrical Insulating Materials after its organization in 1909 was the development and study of test methods for molded insulating materials.

In 1917 the committee presented to the Society for publication as tentative, tests for molded insulating materials which included procedures for tensile strength, compressive strength, transverse strength, dielectric strength, distortion under heat, and effect of moisture.

These methods were intended to apply to all solid insulating materials formed in molds between platens by the application of pressure either with or without heat. The methods were continued as tentative in their original form until 1921 when they were revised. Although no criticism of the methods had been received, certain improvements had been proposed because advances in the art, occurring after the preparation of the methods of test, had resulted in a more uniform product.

In 1922 the methods were adopted as standard. In the 13 years that the methods have been standard the committee has continued its experimental work and study, and from time to time revised the procedures for making the various tests.

In 1927 a more precise procedure was adopted for compressive, transverse, and dielectric strength tests at elevated temperatures. In 1929 the use of a disk specimen rather than a cup specimen in the dielectric strength test was included. In 1930 a note was added permitting the use of the same molds for hot and cold molding compounds. In 1933, after experience had shown that the values obtained in the various mechanical tests depended on the moisture content of the specimens, the methods were modified to require moisture conditioning of the test specimens.

Testing Insulating Oils

Standard Methods of Testing Electrical Insulating Oils—The methods of testing electrical insulating oils were presented to the A.S.T.M. by its Committee D-9 for publication

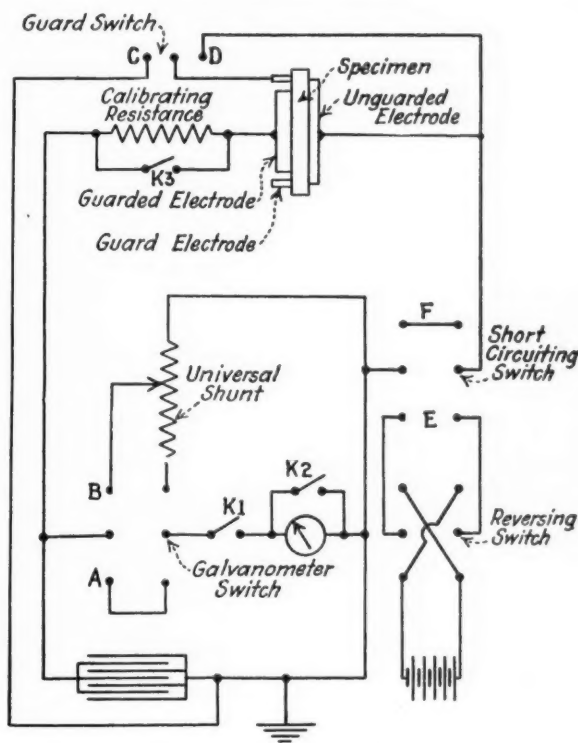
as tentative in 1921 under the title, "Tentative Methods of Testing Transformer and Switch Oils." At that time the methods included, by reference, the standard tests for viscosity, flash and fire points, pour point, acidity, and sulfur, and described in detail a test for dielectric strength.

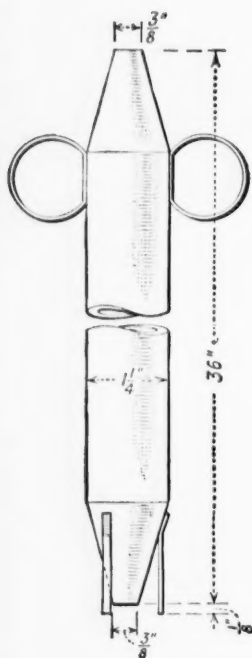
The latter test was developed after an extensive and thorough investigation which included more than 2100 tests and extended over a period of four years. The results of this study appear as Appendix I to the 1921 report of the Committee.

In 1924 the methods in their original form were adopted as standard. The increasing attention given to electrical insulating oils used in transformers and high-tension switches had resulted in a wider use of these methods and indicated the desirability of more detailed instructions with regard to sampling.

Furthermore, a very important demand arose that the methods be made applicable to oil in service as well as to new oil. Accordingly, in 1926 the standard methods were withdrawn and replaced by new Tentative Methods of Testing Electrical Insulating Oils. In 1927 the methods were adopted as standard with minor changes.

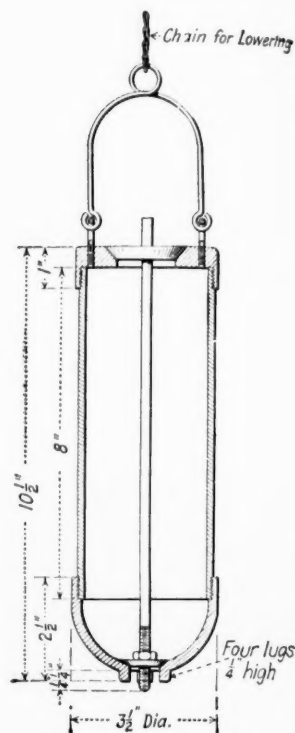
Diagram of connections for resistivity determinations specified in the American Standard Method of Test for the Resistivity of Insulating Materials (C29.3-1935).





American Standard Thief for sampling insulating oils from drums. This device is operated by the thumb of the man taking the sample for taking samples for test in accordance with the American Standard Method for Testing Insulating Oils (C59.2-1935)

Automatic Thief, designed to take samplings of insulating oils from tank cars. It is so designed that it will automatically take a sample of oil within at least 0.5 inch from the bottom of the tank



For some time the committee had been carrying on investigations in cooperation with the United States National Committee of the International Electrotechnical Commission. The correlation of work between these groups led to the development of a method of sampling insulating oil which in 1931 was adopted and incorporated in the methods.

In 1933 a new section was included in the methods approving by reference the Standard Method of Test for Steam Emulsification of Lubricating Oils.

Resistivity of Materials

Standard Methods of Test for Resistivity of Insulating Materials—The methods of test for resistivity of insulating materials were presented to the Society in 1926 by Committee D-9 for publication as tentative under the title, "Tentative Methods of Test for Surface Resistivity and Volume Resistivity of Solid Insulating Materials."

The methods were the result of study and investigation over a long period and were issued to fulfill a demand for a standard procedure for measurements of this kind. In 1929 the methods were completely revised, and extended to include a test for determining the resistivity of liquids,

and were issued under the present title. The methods were further revised in 1932 to clarify the testing procedure and to include the use of conducting paint electrodes. After these revisions it was felt that the methods were satisfactory, and in 1933 they were adopted as standard.

The standard now covers definitions, test specimens, and types of electrode, apparatus measurements, test procedures, and methods of making calculations.

Rubber Matting Specifications

Standard Specifications for Rubber Matting for Use Around Electrical Apparatus or Circuits not Exceeding 3,000 Volts to Ground—The specifications for matting were prepared by Committee D-11 on Rubber Products and issued by the Society as tentative in 1923.

The preparation of these specifications was undertaken by Committee D-11 to meet the needs of the electrical industry at the request of the Accident Prevention Committee of the National Electric Light Association.

The specifications cover manufacture, mechanical properties, electrical properties, dimensions, workmanship and finish, inspection and rejection, and methods of test.

Automotive Standards Make Unusual Progress in 1934¹

by

C. W. Spicer

Chairman, S.A.E. Standards Committee

AT THE close of this administrative year, it can be reported that the Standards Committee of the Society of Automotive Engineers has made unusual progress on a number of major standardization projects.

Recommendations by 15 Divisions have been approved and adopted by the Society since the Annual Meeting in January, 1934. These embraced completely revised specifications for motor vehicle storage batteries, including the addition of notes on testing storage batteries, submitted by the Electrical Equipment Division.

The Aircraft Division reported revised standards for flat-head pins and aircraft bolts and nuts.

The Iron and Steel Division reported a series of charts to be used for classifying S.A.E. and allied structural steels according to grain size, that are in accord with the corresponding specification of the American Society for Testing Materials.

As a result of over two years of work, the Lighting Division submitted reports on revised laboratory tests for electric headlamps and for reflex reflectors for motor vehicles and a new recommended practice for headlight switching. The Transportation Division submitted a completed Uniform Motor Vehicle Operating Cost Classification that includes three groupings of the classification items, one group appropriate for use by small motor vehicle fleet operators, one for moderate sized operators and a more comprehensive one for the larger fleet operators. The extended general classification includes also the cost record forms that are necessary for each of the group divisions.

A number of important projects were submitted to the general Standards Committee and Council for adoption at the Annual Meeting in January. Among the more important of these were a complete review and revision of the S.A.E. Iron and

Steel specifications, notes on heat treatments and physical properties. This has been a project of great scope and importance.

The Motorboat and Marine Engine Division submitted reports of a standard for mounting out-board motors and also a revised standard for propeller shaft ends and propeller hub bores.

The sparkplug specifications have been brought up to date by the Gasoline Engine Division and included the thread specifications for the 14 mm spark plug.

The Motorcoach and Motor Truck Division approved the adoption of recommended tank dimensions on gasoline tank trucks that were developed in cooperation with committees of the American Petroleum Institute and the truck tank manufacturers.

The Passenger Car Division has been cooperating with a sectional committee under the American Standards Association procedure in developing test specifications for the several types of safety glass used in motor vehicles.

The Screw Threads Division reviewed the complete revision and extension of the general standards for screw threads, for approval both as S.A.E. Standard and as American Standard.

Under the Passenger Car Division, work has also continued in cooperation with the Automobile Radio Committee of the Radio Manufacturers Association which includes the program of investigation of the phenomena of interference by automobile ignition systems.

Sectional Committees

Many of the projects in sectional committees for which the Society is sponsor or on which it is represented are of necessity long-time undertakings. Progress on a number of these has been made during the year, notably in the fields of small tools, screw threads, and threaded products.

¹ SAE Journal, Feb. 1935.

Among the more important projects are also the development of standard test methods for safety glass, referred to above, and the further development of a code or classification for surface finishes on different metallic and non-metallic materials used in industrial manufacture. As these and other projects near completion in sectional committees they will be reported on from time to time in the *S.A.E. Journal* and in *INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY*.

International Standardization

There is relatively little to report this year in this field of the Society's activities, except that in the field of automobile tires the Society has cooperated with the Tire and Rim Association, Inc., in working towards international agreement on tire sizes, with the assistance of the American Standards Association. It appears probable that only limited results should be expected in this direction due to the varying conditions and requirements in different countries, especially those on the Continent. A number of European international groups organized and functioning under the International Standards Association of which the ASA is a member, held a series of conferences this fall on a number of automotive topics but information regarding the results of these conferences is not yet available. Participation in these international activities will be continued where feasible and practical results can be had.

General Activities

As in previous years the Society has continued its cooperative activities with other groups such as the Army-Navy Standards Conferences, the American Society for Testing Materials, the American Petroleum Institute, the Radio Manufacturers Association, and others whose activities reach into the automotive industry.

General Recommendations

It is apparent that the automotive and associated industries are emerging from the conditions of the past few years with the development of many new ideas and products. There is a growing recognition of the importance and value of practical engineering standardization in the design and manufacture of engineered products and your Committee strongly recommends that the work of the Society in this field be given even greater recognition and support by the industry through the men on the various Divisions of the Standards Committee who are carrying this work forward and by a wider application and use of the results of their efforts.

Foreign Standards For Sale by ASA

Use Serial Number when ordering any of the Foreign Standards listed below. Address a postal card or letter, with name of person to receive the pamphlets, to:

American Standards Association,
29 West 39th Street,
New York.

Standards are printed in language of the country under which they are listed.

Australia

- 599. Paper sizes for drawing office use.
- 600. Code for metallic arc welding in steel buildings.
- 601. Code for structural steel in buildings.
- 602. Refrigeration code.
- 603. Steels for laminated springs for automobiles.
- 604. Stone paving blocks.

Belgium

- 605. Sampling and analysis of lubricating oils and greases.
- 606. Standard specifications for internal combustion engines for coupling to electric generators and for motor generator sets.
- 607. Standardization of pipe lines, general principles.

Canada

- 608. Essential requirements and minimum standards covering electrical equipment, part 2, Canadian electrical code, specification no. 6, construction and test of electric clocks.
- 609. Essential requirements and minimum standards covering electrical equipment, part 2, Canadian electrical code, specification no. 7, construction and test of portable electric displays and incandescent lamp signs.
- 610. Essential requirements and minimum standards covering electrical equipment, part 2, Canadian electrical code, specification no. 9, construction and test of electric fixtures.
- 611. Essential requirements and minimum standards covering electrical equipment, part 2, Canadian electrical code, specification no. 10, construction and test of electric floor surfacing and cleaning machines.

Great Britain

- 612. Acetone.
- 613. Ethyl alcohol.
- 614. Methyl alcohol (methanol).
- 615. Normal butyl alcohol (butanol).
- 616. Crude carbolic acids, 60's and 45's.
- 617. Distilled carbolic acids, 60's and 45's.
- 618. Cresylic acid of high orthocresol content.
- 619. Cresylic acid (50/55 per cent metacresol).
- 620. Refined cresylic acids, grades A and B.
- 621. Orthocresol, metacresol and paracresol.
- 622. Phenol.
- 623. Alternating-current track relays (2 element, 2 position).
- 624. Baking insulating varnish (bitumen type) for electrical purposes.
- 625. Creosote for fuel in furnaces.
- 626. Drawn lead traps.
- 627. European larch poles for transmission lines.
- 628. Leclanche type primary cells.
- 629. Medium hard copper strip, bars and rods for electrical purposes.

Standardization and Control of Quality¹

by

S. F. Dunkley, O.B.E.

*Officer in Charge of Stores Testing,
Gas Light and Coke Company, London.*

TO MANY, standardization means nothing but the monotonous and the inevitable, the retarding of invention and design, the elimination of individuality, and the complete cessation of progress. Others accept casually all the conveniences of modern times and forget entirely our dependence upon standards to get them.

Standardization dates back as far as history records—speech, writing, measure, and time being the bases upon which civilization developed. Today we look upon standardization as something applied to or connected with industry—hence the generally recognized term “industrial standardization.” This term is now internationally known as applying to standard specifications and regulations governing the manufacture, assembly, and supply of all forms of equipment and materials.

To those who may have been privileged to assist in any national program of coordination, it means much more; it signifies the unification and simplification of all the requirements of industry by the very closest cooperation between the producer, merchant, and user. The work does not end here, but insures a continuance of these relations by frequent and careful reviewing of present practice and the making of such changes as may be desirable to meet current demands.

Standards Guide Industry

No far-seeing producer or merchant can afford today to proceed with any venture without regard to existing standards—initial cost, a ready sale, and the safeguarding of good will being the deciding factors.

Today, therefore, we must accept industrial standardization as the cooperation of all interests to produce the best commodity in sufficient quantity, and at the lowest possible cost. There can be at any one time a very limited number of ideal ways of doing a job and they can only be

¹ Abstract of a paper given before the London and Southern District Junior Gas Association, January 25.

So important are standards and orderly standardization and simplification in the export field, that the British Standards Institution has formed “local committees” abroad to encourage the use of British Standards.

This, according to Mr. Dunkley, further makes an effective liaison with consumers in foreign countries and in different parts of the Empire.

selected out of all the good ones so far discovered.

This standardization, far from leading to stagnation, is actually of great benefit to the community.

There is a strong international feeling in favor of well-planned cooperative standardization. Industrial standardization is now accepted as a necessity by all the nations of the world.

Interchangeability Was Stepping Stone

The necessity became apparent with the growth of invention and progress of industry, and was first felt in the need for interchangeability of component parts, regular qualities of materials, and the prevention of accidents and sickness in industry.

At the beginning of the present industrial era, the pioneer work of Sir Joseph Whitworth in his advocacy of a uniform series of screw threads, was an outstanding contribution. This led rapidly to the practically universal adoption of the Whitworth Thread as a standard.

Although many industries are fully alive to the necessity of industrial standardization, the difficulties still met with daily, due to lack of it, are very apparent. A little reflection brings home to most of us the waste of time, inconvenience, and expense connected with some of the most simple

Finds 16 Advantages Of Standardization

The advantages of industrial standardization can be summarized as follows:

1. Greatly reduced manufacturing costs due to:
 - (a). Less machinery and equipment required for a given turnover.
 - (b). Time saved in breaking down and re-assembling of plant, machinery, and equipment.
 - (c). A quicker turnover of finished products and components.
 - (d). Reduced floor space.
 - (e). Reduced overhead costs.
 - (f). Simplified supervision and inspection.
 - (g). Simplified clerical and costing systems.
2. Reduction in idle and invested capital due to fewer patterns, more rapidly moving stock, and a reduction in overheads.
3. Less obsolete machinery.
4. The minimizing of the ill-effects of seasonal demands by the levelling up of the labor load, reduction of overtime, and unemployment.
5. Increased turnover.
6. A more stable and readily saleable line of goods.
7. A reduction in losses due to obsolete stocks.
8. Reduction in the number of selling lines facilitating the work of the salesman.
9. A product of more reliable quality at a cheaper price.
10. Greater choice of makers.
11. Quicker delivery, particularly in busy seasons.
12. Greater interchangeability of parts, ease of maintenance and repair.
13. Reduction in the cost and preparation of drawings, specifications, and tenders.
14. Fewer mistakes in ordering and supply due to adoption of standard specifications, terms, and definitions.
15. Reduced selling price.
16. Better second-hand value.

work—delay and return journeys for special tools to fit non-standard parts or to cut special threads, unnecessary cutting and filing to fit, complications in design, which make maintenance difficult, difficulty of recognizing makes and dates of apparatus frequently changed in design, and of accurately describing parts without a recognized nomenclature.

It is still impossible for any one contracting firm to stock replacement accessory parts for much of our domestic equipment, owing to the enormous variety necessitating special orders and correspondence. Many appliances are so designed as to require the quite unnecessary provision of a special type or size of tool for maintenance, thereby adding to the cost and complications of the work.

All this is, possibly, due to the fact that the existence of certain standards and practice is still not widely known and also that the multiplicity in

types, sizes, designs, and qualities of apparatus and their components is less apparent to the firms producing them than to the many thousands directly employed in their storage, installation, maintenance, and use.

World Trade Demands Integration

In view of the importance of international trade, it seems inevitable that there must be more and more general agreement between producers and purchasers all over the world, and there are already indications both politically and commercially of this taking place.

In practically all the producing nations of the world simplification and standardization is organized on a national basis. Some years ago a federation of the various national standardizing organizations came into being, first as a federation of the European standards bodies, which all had a system of weights and measures in common, and subsequently with the affiliation of the American Standards Association.

National standardizing bodies, comparable to, and in close liaison with, the British Standards Institution, exist in all the British Dominions, with the exception of India, which is at present contemplating the establishment of one. Australia alone has over 500 technical drafting committees engaging the voluntary help of some 4,500 technical and business men.

Work is Reviewed

All final drafts of British Standard Specifications are referred to the Dominion Associations; and those of the Dominion Associations to the British Standards Institution for examination and comment prior to their adoption and issue.

In the past, owing to the absence of British

The one really important and great advantage of the standardization procedure from a national point of view is that the preparation of a standard specification necessarily involves the pooling of a large amount of technical knowledge and experience which would not be obtainable by other means.

This cooperation and subsequent unity of action stimulates confidence, and is in itself a constructive means of finding remedies to many of our industrial difficulties. By liberating large amounts of capital locked up in slow-moving stocks, it must provide incentive for its employment in other directions, with all-round benefit to the labor market.

Standards, even the British Colonies were inclined to adopt foreign standards. Although there has been a desire to encourage and increase trade within the Empire, this has been hindered by insufficient knowledge of requirements, unsuitable supplies, and differences in trade practice. It is necessary to establish complete confidence as to the suitability of the goods offered, and mutually agreed upon standards would appear to be the easiest method.

Foreign buyers, also, are not so ready today to take goods at their face value, but require details of quality and methods of test. Some of the British specifications have been prepared with this point definitely in mind. In the near future it is likely that countries will insist that exports comply with a recognized standard. Manufacturers and others are, therefore, finding it increasingly necessary to have a full knowledge of British, Dominion, and foreign specifications, as these provide detailed information as to the qualities of materials and products required by, and produced in, the respective countries.

The British Standards Institution has already formed local committees in important markets in order to encourage the use of British Standards and to secure effective liaison with users in those countries.

A.S.T.M. Committee Tests Causes Of Corrosion of Iron and Steel

A report on the investigations being carried on by the Committee on Corrosion of Iron and Steel of the American Society for Testing Materials has been published by the A.S.T.M.

Many of the important exposure tests now in process under the direction of the committee are described in detail. A complete record of the failures observed at all inspections of the Nos. 16 and 22 gage uncoated copper-bearing and non-copper-bearing sheets which have been exposed to the atmosphere at Annapolis since October, 1916, is included in the report. Extensive tables also give the failures in the No. 16 gage sheets immersed in seawater at Key West, Fla., and Portsmouth, N. H., since March, 1927.

Detailed tabular records and discussion cover the field tests on galvanized sheets which have been on exposure racks at several locations since April, 1926. Coating failures are indicated and data on progressive development of rust are given in the report. Records of perforations of uncoated sheets which are exposed with the coated specimens are also included.

General plans for extensive field tests on wire and wire products are discussed, and important

24 Other Countries Have Standardizing Societies

Twenty-four national standardizing bodies, similar to the American Standards Association, have been organized in other countries. Four of these, including the British Standards Institution, are in the British Empire. The 24 national standardizing bodies are:

Standards Association of Australia
Oesterreichischer Normenausschuss, Austria
Association Belge de Standardization, Belgium
Canadian Engineering Standards Association, Canada
Chinese National Standards Committee, China
Ceskoslovenska Normalisacni Spolecnost, Czechoslovakia
Dansk Standardiseringsraad Industribygningen, Denmark
British Standards Institution, Great Britain
Finland Standardiseringskommission, Finland
Association Francaise de Normalisation, France
Deutscher Normenausschuss, Germany
Comite Hellenique de Normalisation, Greece
Centraal Normalisatie Bureau, Holland
Magyar Ipari Szabvanyosiol Bizottsag, Hungary
Ente Nazionale Per L'Unificazione Nell'Industria, Italy
Japanese Engineering Standards Committee, Japan
New Zealand Standards Institution, New Zealand
Norges Standardiserings-Forbund, Norway
Polski Komitet Normalizacyjny, Poland
Comm. Roumaine de Normalisation, Roumania
Comision permanente de ensayo de materiales y de tipificacion industrial, Spain
Sveriges Standardiserings-kommission, Sweden
Bureau des Normes du VSM, Switzerland
International Standardization Bureau of USSR

The American Standards Association exchanges standards and other publications and services with these standardizing bodies, and maintains a complete file of all standards approved by them for sale and loan to ASA Members.

details concerning the materials which will be exposed to the atmospheric corrosion are included.

Copies of the 32-page report are available from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, or from the American Standards Association, at 50 cents each.

Revision on Ice Cream Cups Mailed for Acceptance

The Division of Simplified Practice, National Bureau of Standards, has mailed copies of a revision of Simplified Practice Recommendation R132-32 for Ice Cream Cups and Cup Caps to all interests for acceptance.

Engineers Suggest Standard Lighting Code to Reduce Street Accident Hazards

An increase in automobile accidents in direct proportion to a decrease in street lighting was pointed out as the result of a three-year survey on street-lighting costs and automobile fatalities carried on recently by the National Bureau of Casualty and Surety Underwriters. Cities with the lowest per capita costs for street lighting have the highest night automobile fatality rate per hundred thousand population, the survey showed, while the cities with the highest per capita cost for street lighting have the lowest night automobile fatality rate.

As a guide to engineers and municipal authorities in planning adequate street lighting, the Illuminating Engineering Society has just published its standard Code of Street Lighting, which outlines minimum requirements for lighting on six classes of city streets. Adequate street lighting which would make it possible for city authorities to require dim headlights or the use of side lights

One-Third of Deaths Traced to Bad Light

Some 31,000 people were killed on the highways in 1933, half of them at night. One-third of the night fatalities could have been prevented by adequate lighting, says the National Bureau of Casualty and Surety Underwriters.

Out of a total of 203 fatalities during the two-hour morning period studied in the survey—5 a.m. to 7 a.m., a period of light in summer and darkness in winter—64 occurred during the summer months and 139 during the winter months.

One group of cities increased its street-lighting budgets 11 per cent and experienced a 25 per cent reduction in night fatalities. Another group reduced its street-lighting budget 14 per cent and suffered a 7.6 per cent increase in night fatalities.

only on all automobiles is the goal to be desired, according to the Society. Powerful and far-reaching headlights, which cause glare on the streets, are detrimental to safety, comfort, and street ap-

Relation Between Traffic Flow, Street Lighting, and Automobile Fatalities

Traffic	Lighting	Million Vehicle Miles		Fatalities		Fatality Rate per M. V. M.	
		Day	Night	Day	Night	Day	Night
A	A	94.3	27.4	25	48	0.26	1.75
A	B	222.0	62.4	57	138	0.25	2.21
A	C	29.5	6.5	6	22	0.20	3.34
A	D	57.1	12.2	11	44	0.19	3.66
B	A	8.5	3.0	4	5	0.47	1.66
B	B	54.1	15.0	28	54	0.51	3.60
B	D	39.9	10.2	10	51	0.25	5.00
C	B	4.5	1.1	2	7	0.44	6.24
C	C	4.6	.6	2	5	0.43	8.19
C	D	9.9	3.1	5	19	0.50	6.11
Composite		524.5	141.5	150	393	0.28	2.77

Heavy traffic on thoroughfares that usually carry a maximum of more than 1,500 vehicles per hour in both directions during the lighting period is classified as A traffic; medium traffic with 800 to 1,200 vehicles per hour is B traffic; and light traffic of not more than 500 vehicles per hour is C traffic.

Street lighting is classified as grade A when the equipment provides 80 or more lumens; grade B, 40 to 80 lumens; grade C, 25 to 40 lumens, and grade D, less than 25 lumens per lineal foot.

Traffic conditions have been reduced to the common unit of million vehicle miles (m.v.m.) per year.

pearance. Adequate street lighting reduces accidents, provides a crime deterrent, encourages development of business districts, enhances property values, and makes more effective use of the large investment in street and highway construction.

Varying traffic conditions on different types of streets have been taken into consideration in preparing the recommendations. Light-traffic thoroughfares, heavy-traffic thoroughfares, business districts, residence streets, alleys, and highways are treated separately in the Code.

The Committee on Street Lighting of the Illuminating Engineering Society, which prepared the Code, recommends that more than the minimum recommendations for street lighting be provided wherever possible. Standards of street lighting practice are increasing at a rapid rate and the Committee suggests that any installations made in accordance with the present minimum Code be planned so that it will be possible to increase the lighting intensity materially.

Copies of the Code of Street Lighting are available from the Illuminating Engineering Society, 29 West 39 Street, New York, or from the American Standards Association, at 10 cents each.

A.S.T.M. Publishes 1934 Proceedings

The 1934 *Proceedings* of the American Society for Testing Materials, consisting of Part I, Committee Reports, and Part II, Technical Papers, are now published by the A.S.T.M. Copies can be purchased from the American Society for Testing Materials, 260 South Broad Street, Philadelphia, or from the American Standards Association, at \$5.50 for each volume, in heavy paper binding; \$6.00 each in cloth binding; \$7.00 each in half-leather. The American Standards Association will lend copies of the *Proceedings* to Members upon request.

Reports of 44 A.S.T.M. standing and research committees, and sectional committees under A.S.T.M. sponsorship, are published in Part I. Subjects covered include Ferrous Metals; Non-Ferrous Metals; Cementitious, Concrete, etc.; Miscellaneous Materials, Paints, Oils, etc.

Approximately 50 specifications and tests first published in 1934 are included, together with all proposed revisions of A.S.T.M. standards.

Part II includes all of the formal papers presented at the 1934 meeting of the American Society for Testing Materials, as well as the extensive oral and written discussion.

Among the outstanding papers and discussions are: aging embrittlement of 4 to 6 per cent

chromium steel; creep properties of chromium-molybdenum-steel still tubes; interpretation of creep tests; soil corrosion data; frictional resistance of steel and brass in shrink fits; strain measurements; and effect of test specimen on observed physical properties of steel.

An extensive paper based on several years of research involving thousands of tests discusses cement composition in relation to strength, length changes, freezing and thawing, etc., of mortars and concrete. Other papers cover effect of duration of moist-curing on concrete; plastic flow of concrete under sustained stress; and compression tests on portions of beams from flexure tests.

The papers covering permeability tests of 8-in. brick wallettes and cracking between various mortars in bricks and brick structures stimulated much discussion. Interest has been shown in the discussion of de-airing dry-press and stiff-mud bodies for clay products manufacture.

Under the subject of paints and miscellaneous materials, three papers comprise a discussion on tinting strength; two cover vapor lock of motor fuels; and others cover joint compounds for sewer pipe; a service test for pavement materials; and a comprehensive evaluation of subgrade soil testing methods. Combustibility of fire-retardant wood; testing raw materials for rubber compounds; vibrating wire measurement of deformations; and the solution of metallurgical problems by statistical methods are subjects of other papers included in this section.

Directory of Organizations Will Be Loaned by ASA

A Directory of Organizations in the Field of Public Administration, describing 500 national organizations including organizations of public officials and public employees; trade, commercial, and professional associations interested in problems of public administration; and citizen groups interested in the improvement of government and public administration, is now in the American Standards Association office and will be loaned to Members upon request.

The book gives names and addresses, the services the organizations perform, and names and prices of periodicals issued by them.

The Directory also lists more than 1400 state, regional, and Canadian associations.

The book was prepared by the Public Administration Clearing House, has 192 pages, heavy paper bound, and can be ordered from the Public Administration Service, 850 East 58th Street, Chicago, Ill., or from the American Standards Association at \$1.00 per copy.

Safety Laws Becoming Effective in 1935

LAWS have been passed in several states of this country calling for safety glass protection in all new vehicles registered in those states during 1935.

The New York State Vehicle and Traffic Law states, "It shall be unlawful after January 1, 1935 to operate on any public highway or street in this state any motor vehicle registered in New York State, manufactured or assembled after said date unless such vehicle be equipped with safety glass wherever glass is used in doors, windows, and windshields."

Charles A. Harnett, Commissioner, Bureau of Motor Vehicles, New York, in commenting recently upon the safety glass amendment to the New York law, which he sponsored, stated:

"The efficacy of New York's safety glass law cannot be determined until all cars on the road come under its provisions. An amendment to the Vehicle and Traffic Law requires safety glass as an equipment on all omnibuses, school buses, or cars carrying passengers for hire, manufactured after January 1, 1934. A similar provision will affect all New York-registered motor vehicles, which are manufactured or assembled after January 1, 1935.

"To the vehicles now affected by the law there has been an appreciable reduction of serious injuries as a result of traffic accidents, and there can be no doubt of the beneficial effects, if all cars were required now to be equipped with safety glass.

"I have in mind a glaring instance of the type of injury we have aimed to check. A young man and woman residing in New York were married early this year, and an hour following the ceremony the bride lay dead on the street. She occupied a car seat at the side of the bridegroom, who was driving under an elevated railroad structure. A streetcar collided with the automobile, crushing it against an elevated railroad pillar and the bride's jugular vein was severed by a piece of glass. Had the car been equipped with safety glass, the young woman would be alive today.

Expects Reduction in Injuries

"I firmly believe there will be a marked reduction in serious injuries resulting from traffic

Legislators seek to curb accidents in state laws being enacted throughout the United States

crashes, when, in the course of a year or two, safety glass will be used in practically all the cars on our highways."

The following amendment to the Vehicle Code becomes effective in the state of Pennsylvania January 1, 1935:

"It shall be unlawful on and after the first day of January, 1935, to operate on any public highway or street in this commonwealth any motor vehicle, manufactured or assembled after said date, unless such vehicle be equipped with safety glass wherever glass is used in doors, windows, or windshields."

The safety glass amendment to the New Jersey Motor Vehicle Act reads as follows:

"On and after July 1, 1935, the Commissioner of Motor Vehicles shall not register a motor vehicle manufactured on or after that date unless safety glass, approved by the Commissioner of Motor Vehicles, has been used in the construction thereof in such parts of the motor vehicle as may be designated by the rules and regulations of the Commissioner of Motor Vehicles in accordance with standards recognized by the National Bureau of Standards."

More Use of Safety Glass

Governor Hoffman advises that "there is but little doubt that safety glass will be required all around in all vehicles."

On January 1, 1935, the Iowa Motor Vehicle Law calls for safety glass in all doors, windows, and windshields in all motor vehicles registered in the state of Iowa, manufactured or assembled after this date, designed or used for the purpose of carrying passengers for hire or used for the purpose of carrying school children.

After July 1, 1935, any motor vehicle registered in the state of Iowa, manufactured or assembled after said date, must be equipped with safety glass in all doors, windows and windshields.

Under the Nebraska motor vehicle law, after January 1, 1935, all motor vehicles manufactured or assembled thereafter and designed or used to carry passengers must be equipped with laminated safety glass in all doors, windows, and windshields.

After January 1, 1935, the Motor Vehicle Code of Virginia calls for safety glass wherever glass is used in doors, windows, windshields and side-shields in all motor vehicles manufactured or assembled after said date and designed or used for the purpose of carrying persons for hire or as a public conveyance to transport school children and others.

Effective January 1, 1936, the law requires that safety glass be used wherever glass is used in doors, windows, windshields and sideshields in all motor vehicles registered in the state, manufactured or assembled after the said date. *Safety Engineering, January, 1935.*

Reaffirm Simplified Practice Programs

The Division of Simplified Practice of the National Bureau of Standards announces that the following Simplified Practice Recommendations have been reaffirmed without change by the Standing Committees of the industries:

Carbonated beverage bottles R123-30
Elastic shoe goring R112-29
Fast-selva terry towels R119-31
Glass containers for preserves, jellies and apple butter R91-32
Iron and steel roofing R78-28
One-pound folding boxes for coffee R64-30
Paper cones and tubes R143-33
Wire screen cloth R122-31

Copies of these Simplified Practice Recommendations, with the exception of the one on carbonated beverage bottles, can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the office of the American Standards Association at five cents each. The Simplified Practice Recommendation on carbonated beverage bottles is 10 cents.

British Standard Specifications Simplify Engineers' Clerical Labor

The number of British Standard Specifications continues to increase, and simplifies the engineer's clerical labor in describing what he wants. The

Consumer Standards And Information Are Needed

In his new book, *Retail Price Behavior*, Prof. John H. Cover, University of Chicago, says:

"It is apparent that consumers are unprotected from inferior quality and workmanship, due

"1. To their inability to become expert in the testing of articles before purchase,

"2. To the absence of an organization with the responsibility of informing the public as to the merits of goods, and

"3. To the inadequacy of laws requiring manufacturers and merchants to detail the characteristics of their products.

"So technical are many of the tests required, that retailers are frequently not aware of the quality of merchandise they handle. In addition, proprietary articles frequently have secret formulae which are protected with patents and copyrights.

"The large number of factors determining retail prices suggest that not alone should stabilization of trade practices and standardization of commodities be sponsored by code authorities, but that, in addition, a governmental agency responsible for offering advice to the consumer be established." (*Retail Price Behavior*, \$2.00, University of Chicago Press.)

tests stipulated are definite, but their nature is such that the assistance of the chemist or metallurgist, with a comprehensively fitted laboratory, is often essential. The engineer, however, should have a sufficient knowledge of the chemical and physical properties of the materials with which he deals to understand the why and wherefore of the tests executed.

The introduction of new materials, or the evolution of fresh methods of construction, demands that the engineer shall be able to specify the constitution and tests on such new materials to form a competitive basis for bids, without leaving a loophole for ambiguous interpretation.

If a new material or process survives its experimental period, then there is always the hope and probability that a British Standard Specification will be drafted to cover it.—*Surveyor, London, Feb. 1.*

Committee on Recommended Practice For Brick Masonry Resumes Activity

IN 1928, at the request of the Common Brick Manufacturers Association, the American Standards Association formed an autonomous sectional committee A41 to prepare a manual of good practice for brick masonry. The history behind this request can be summed up as follows:

Brick, although one of the oldest of structural materials, had little known about its properties up to the early nineteen-twenties. Starting in 1880 at the Watertown Arsenal, various scattered tests were made on bricks and brick masonry. These earlier data on strength of brick masonry had been collected and published by the Building Code Committee of the United States Department of Commerce in 1926. Corresponding compilations of data on the properties of individual bricks had been prepared by Committee C-3 on Brick of the American Society for Testing Materials.

Study Brick Masonry

In 1925 the Common Brick Manufacturers Association established a full-time fellowship at the National Bureau of Standards for the purpose of studying the properties of brick masonry. A similar fellowship had been previously established by the American Face Brick Association. By 1928 so much new quantitative information on brick masonry had resulted from this work at the National Bureau of Standards that the preparation of a manual seemed justified.

Subsequent to the organization of the ASA sectional committee in 1928, considerable progress was made in drafting a manual. However it soon became evident, in spite of the considerable accumulation of pertinent data, that more information was needed about certain features of brick masonry. For example, the very important subject of masonry cements was treated in the first draft of the manual much like the chapter on snakes in the celebrated, "Natural History of Ireland."

In 1931, on account of changes in personnel in the Brick Association, work of the committee ceased.

Resumption of activity at this time is on account of the following circumstances:

1. Since 1931 there has been an extensive accumulation of data on the subjects of the cause and prevention of wet walls, properties of masonry

Ancient craft found to need uniform practice, when industry asks ASA to prepare manual on recommendations

cements, bond between brick and mortar, reinforced brick masonry, and weathering resistance of bricks and brick masonry, which added to the information already available makes possible the writing of a very complete manual.

2. Architectural specification writing, during the past few years has become increasingly centralized. Whereas specifications for a building in a given city were formerly usually written by a local architect, acquainted with the local brick and local practices, today, on government funds, a specification for the masonry of a building to be erected in New York City is likely to be written by an architect whose previous experience has been in Chicago or vice versa.

National Standard Needed

Obviously a *national* standard is needed.

The immediate aim of the committee is the preparation of a condensed manual of good practice for the construction and design of brick masonry. The scope of the work is indicated by the list of subcommittees, published herewith.

Name Subcommittees

Members of subcommittees other than representatives of organizations include:

H. D. Baylor, Louisville Cement Co.; S. H. Ingberg, Chief, Fire Resistance Section, Heat & Power Div., National Bureau of Standards; Lt. Comdr. Ben Moreell, Bureau of Yards & Docks, Navy Dept.; Stanley Newman, Boston; G. N. Thompson, Chief, Building Codes Section, Division of Codes and Specifications, National Bureau of Standards.

Subcommittee I, of the ASA Sectional Committee A41; on correlation, editorial and definition

problems. George L. Lucas, Chairman; T. R. Lawson, Rudolph P. Miller and G. N. Thompson.

Purpose and Scope:

- (a). To assign work to the other subcommittees.
- (b). To correlate subcommittee reports.
- (c). To edit subcommittee reports and prepare reports for submission to Standards Council and for publication.
- (d). To secure agreement on definitions from the various subcommittees concerned and to formulate definitions where necessary.

Subcommittee II, on Brick. T. R. Lawson, Chairman; Paul Belden, A. M. Korsmo, D. E. Parsons, H. C. Plummer, L. S. Wells, P. M. Woodworth, and J. W. Whittemore.

Purpose and Scope of Subcommittee II:

- (a). To collect and correlate data on the properties of brick units.
- (b). To recommend specifications for brick units. (NOTE: Since the majority of the above committee are members of C-3 on Brick of the A.S.T.M. it can be assumed that there will be effective cooperation between the two groups.)

Subcommittee III, on Mortar. Lt. Comdr. Ben Moreell, Chairman; P. H. Bates, H. D. Baylor, R. E. Davis, J. W. Ginder, H. F. Gonnermann, L. E. Johnson, L. A. Palmer, D. E. Parsons, C. E. Proudley, F. Leo Smith, and L. S. Wells.

Purpose and Scope:

- (a). To collect and correlate data on the properties of mortar for brick masonry.
- (b). To recommend specifications for mortar for brick masonry.

Subcommittee IV, on Strength of Brick Masonry. Rudolph P. Miller, Chairman; C. W. Chamberlain, R. E. Davis, J. H. Hansen, J. L. Langthorn, D. E. Parsons, J. W. Whittemore, and P. M. Woodworth.

Purpose and Scope:

To collect and correlate the data on assemblages of brick and mortar for compression, transverse, tensile and shearing strength as affected by variables in brick, mortar, workmanship, and design.

Subcommittee V, on Essentials of Good Workmanship. E. W. Roemer, Chairman; P. W. Eller, J. H. Hansen, R. H. Hunter, S. H. Ingberg, A. M. Korsmo, J. L. Langthorn, T. A. Murray, J. F. Murtaugh, G. A. Nelson, and J. C. Sanderson.

Personnel of Sectional Committee on Recommended Practice for Brick Masonry—A41:

George L. Lucas, The Port of New York Authority, Chairman.

Sullivan W. Jones, Chairman, National Construction Planning & Adjustment Board, Vice-Chairman.

J. W. McBurney, American Standards Association, Secretary.

American Face Brick Assn., Paul Belden, President. American Institute of Architects, F. Leo Smith (Alternate to be appointed).

American Society of Civil Engineers, J. L. Langthorn, and George L. Lucas.

American Society of Municipal Engineers, George F. Fisk.

American Society for Testing Materials, Prof. T. R. Lawson (2nd member to be appointed), Prof. J. W. Whittemore (alt.).

Associated General Contractors of America, Inc., Russell H. Hunter.

Bricklayers, Masons & Plasterers' International Union of America, Thomas A. Murray, Harry Winning (alt.).

Brick Manufacturers Association of America, James H. Hansen, H. C. Plummer (alt.).

Building Officials' Conference of America, E. W. Roemer, President, Robert Knight (alt.).

Building Trades Employers' Assn. of the City of New York, Emil Diebitsch, Peter W. Eller.

Federal Emergency Administration of Public Works, Fred R. Washburne, A. M. Korsmo (alt.).

Federal Housing Administration, F. Leo Smith, A. C. Shire (alt.).

Finishing Lime Association of Ohio, L. E. Johnson.

Fire Protection Group, Clinton T. Bissell.

Home Owners Loan Corporation, George A. Nelson.

Mason Contractors Assn., of the U. S., James F. Murtaugh, John A. Mulligan (alt.).

Members-at-Large, Sullivan W. Jones, Rudolph P. Miller.

National Association of Builders Exchanges (to be appointed).

National Association of Real Estate Boards (to be appointed).

National Lime Association, Lee S. Trainor, L. A. Palmer (alt.).

National Sand & Gravel Association, Stanton Walker, C. E. Proudley (alt.).

Portland Cement Association, P. M. Woodworth, H. F. Gonnermann (alt.).

U. S. Department of Commerce—National Bureau of Standards, P. H. Bates, D. E. Parsons (alt.).

U. S. Department of Labor (to be appointed).

U. S. Treasury Department, J. W. Ginder, C. W. Chamberlain (alt.).

Western Society of Engineers, J. C. Sanderson.

Purpose and Scope:

To formulate recommended practices for workmanship.

Subcommittee VI, on Construction and Design. S. W. Jones, Chairman; G. F. Fisk, J. H. Hansen, R. H. Hunter, S. H. Ingberg, J. L. Langthorn, R. P. Miller, B. Moreell, J. A. Mulligan, D. E. Parsons, and J. C. Sanderson.

Subcommittee VII, on Fire Resistance of Brick Masonry. C. T. Bissell, S. H. Ingberg, and Rudolph P. Miller.

Purpose and Scope:

- (a). To collect and correlate data on fire resistance of brick masonry.
- (b). To recommend standards and ratings for fire resistance involving brick masonry.

Subcommittee VIII, on Water Penetration, Air Infiltration, Efflorescence, and Staining of Brick Masonry. D. E. Parsons, Chairman; Emil Diebitsch, H. F. Gonnermann, R. H. Hunter, T. A. Murray, J. F. Murtaugh, L. A. Palmer, E. W. Roemer, J. C. Sanderson, F. Leo Smith, F. R. Washburn, and Stanley Newman.

Purpose and Scope:

- (a). To collect and correlate data pertinent to the title of this subcommittee in cooperation with Subcommittees II and III.
- (b). To interpret all pertinent data.
- (c). To report to Subcommittees II, III, V, and VI recommended practices for the overcoming of water penetration, air infiltration, efflorescence, and staining.

Subcommittee IX, on Durability and Weathering of Brick Masonry. J. W. Whittemore, Chairman; P. H. Bates, Paul Belden, H. F. Gonnermann, T. R. Lawson, D. E. Parsons, A. C. Shire, Lee S. Trainor, and Stanton Walker.

Purpose and Scope:

- (a). To collect and correlate data on durability and weathering in cooperation with Subcommittees II and III.
- (b). To interpret pertinent data.
- (c). To recommend to Subcommittees II, III and IV, practices for the production of durability of brick masonry.

British Will Base Standard for Lifting-Gear Components on Tests

In order that the proposed British Standard specifications for lifting-gear components may be based upon exact knowledge, experiments which fall into the following three main groups are

being carried on by the British Standards Institution:

1. Preliminary tests on existing commercial types, to discover their strength and other properties;

2. Tests made in the development stage of a proposed standard, to investigate the effect of some variable; and

3. Tests made on the proposed standard, to ascertain its resistance to various types of loading, and thus to furnish practical data regarding the efficiency of the design and material used.

Application of scientific principles to the design of lifting-gear components has never been given sufficient consideration, according to a paper recently submitted to the Institution of Mechanical Engineers of Great Britain.

Because of the long experience in the use of chains for lifting purposes, the forms and dimensions of the components—hooks, rings, and other fittings—in relation to the loads they are required to bear have been decided largely from accumulated experience, acquired before scientific methods of design were possible. As a result, a wide diversity of types and designs are in current use. Although a majority of the components in use may be regarded as representing safe practice, many are far from economical.

The use of iron in the form of chain probably represented one of the earliest applications of the metal to the service of man. Early examples, still in existence, show what a high degree of skill in the technique of forging and welding had been acquired even in the Middle Ages.

The use of chains for lifting purposes, with the consequent employment of hooks, rings, and other fittings, probably became general only in later times; but even in this application are of great antiquity.

Standardization of Hospital Supplies Would Make Possible Large Economies

Some 30 per cent of the total maintenance costs of hospitals is for goods that can be readily standardized without interfering with the requirements of the professional staffs, according to a report presented to the Public Health Congress Council, London. By standardization and bulk purchasing, economies of 10-30 per cent may be effected.

Standardization is applicable to hospital furniture and textiles, crockery, cutlery, surgical materials and rubber goods, office requisites and many other articles. Examples are given in the report of economies that could be effected through standardizing such materials. Reports of committees that have considered the subject in Germany and in New York are included.

Safety Movement Shows Progress; New Year Brings Greater Problems¹

As the fifth year of the depression passes, the world looks toward 1935 hopefully. It is fortunate indeed for humans that the coming of a new calendar year can counteract the disappointments of the past.

The safety movement has suffered its share of knocks but it has reason to face the future with confidence. The experiences of the depression years have demonstrated the soundness of organized accident prevention work and it has received support even when industry was hard pressed to balance income and outgo. And the safety movement, we are proud to say, has given the world very substantial returns on the dollars expended for human conservation.

CWA Call on Council

In looking back over the past year, one of the outstanding accomplishments was the organization of safety work for the Civil Works Administration. In this emergency the Federal Government turned to the National Safety Council for help and loyal members in all parts of the country responded promptly and willingly by sponsoring safety programs on the CWA projects in their territories.

This recognition of safety work by the Federal Government has been of far-reaching significance. It also demonstrated the vast resources in leadership within the membership of the Council.

The annual Safety Congress at Cleveland was inspiring evidence of the power of the ideal of Universal Safety. The financial position of the Council showed a slight improvement, although many important activities are still curtailed by limited finances.

Accidents Show Increases

But in the safety movement there is no time to pause and view the situation with satisfaction. The past year has shown alarming upward trend in accidents of all types. During the first ten months of 1934 there were 82,000 accidental fatalities in the United States, as compared with

Business recession shows need of accident prevention work as programs save operating cost of manufacturers

74,341 for the same period of 1933. Many factors have contributed to this increase.

On the highways both old and new cars are among the offenders, the former because of inability to perform safely in modern traffic; the latter because of increased power and speed, too often in the hands of Model T drivers. These factors, combined with an increase in gasoline consumption and aggravated by increased consumption of gin, produce an inevitable result.

From all parts of the country come reports of increases in the number of accidents involving drivers and pedestrians who have been drinking—a problem which is giving considerable anxiety to law enforcement officials.

Industry likewise has been having its difficulties. With supervisory forces reduced drastically, both training and supervision have suffered. Under such conditions even a slight increase in industrial activity is accompanied by increased accident rates.

Depression Worries Cause Accidents

The tension of the past few years has left its imprint on men. It will never be known how many injuries have been due to worried and distracted minds. These psychological problems will be with us for some time after normal business conditions return.

Safety work has suffered to some extent from the suspension of industrial relations activities which are indirectly connected with accident prevention. According to a recent report of the National Industrial Conference Board, training courses for foremen and workers have been curtailed. Suggestion systems have also suffered retrenchment. Accident prevention and medical service have been less affected than many activities. The report, however, does not mention the difficulties under which these departments have been operating because of reduced staff and ap-

¹ National Safety News, Jan. 1935.

propriations. But it is encouraging to note that these important activities have been maintained, even with skeleton organizations.

Our greatest encouragement has come from those companies which have continued to make splendid records in accident prevention, even under difficult conditions. The experience of these companies indicates that safety is not merely a matter of chance, and that the difficulties imposed by the times are not insurmountable.

The year 1935 will make new demands on the safety movement. We will hope so. The safety movement does not desire the kind of safety that comes from closed factories and cars kept in garages. The great aim of the movement is to co-operate with industrial leaders and public officials so that safety may be joined with progress.

British Visitors Are Welcomed at ASA Dinner

In honor of Dr. E. F. Armstrong, chairman of the British Standards Institution, and its director, Mr. C. leMaistre, a dinner was given by the American Standards Association on January 31 in the Harvard University Club, New York.

After President Howard Coonley had welcomed the visitors, Dr. Armstrong reviewed the principles on which the national standardization work in Great Britain are based and the way in which the work had developed. Particularly interesting was the speaker's outline of the cooperation of the chemical industries in the British work. Dr. Armstrong, a prominent consulting chemist, is also chairman of the Chemical Divisional Council of the BSI.

Mr. leMaistre discussed the unification of standardization work in the different nations of the British Empire and certain aspects of general international cooperation in this field.

Mr. Coonley Speaks

The visitors were addressed by Messrs. Coonley, Nicholson (member ASA Board of Directors), and Agnew (secretary of the ASA). It was recalled that the ASA when organized in 1918 was modeled largely on the pattern of the BSI, then the British Engineering Standards Association, which had already gained considerable experience since it was founded in 1901 as the Engineering Standards Committee. This experience included the procedure of the sectional committee, which has been adopted by all national standardizing bodies as the working unit for handling technical matters.

Similarity Traced in Work of British and U. S. Bodies

Interesting analogies in the development of the work of the American Standards Association and the older British Standards Institution were found in the outline of the history of the overseas counterpart to the ASA.

The American standardization body was modeled to a large extent after the British Institution when it was organized in 1918. The BSI was formed in 1901.

The dinner was also attended by Dr. M. C. Whittaker, vice-president, American Cyanamid Company; F. M. Farmer, vice-chairman, ASA Standards Council; Dr. R. P. Anderson, American Petroleum Institute; Dr. K. G. Mackenzie, The Texas Company; Alexander Maxwell, Edison Electric Institute; H. C. Tasker, president, Society of Motion Picture Engineers; C. E. Beam, American Society of Civil Engineers; C. B. LePage, American Society of Mechanical Engineers; A. B. Parsons, American Institute of Mining and Metallurgical Engineers; and Dr. John Gaillard, American Standards Association.

Research Will Help in Developing Standards for Quality of Paper

Research is being conducted by the Government Printing Office, the National Bureau of Standards and the Bureau of Chemistry and Soils to standardize the method for determination of the hydrogen-ion concentration (pH) in paper.

Data gathered from these studies will be used in revising the proposed tentative method for determining the hydrogen-ion concentration in paper prepared by the paper-testing committee of the Technical Association of the Pulp and Paper Industry, of which B. W. Scribner of the National Bureau of Standards is the chairman.

Accurate determinations of the hydrogen-ion concentration, a method for measuring the degree of alkalinity or acidity of substances, is of particular importance to producers and users of paper in any form. This factor affects the production of the paper, both its original strength and also its strength after a period of use, the ability to take and hold ink, and the resistance paper will have to deterioration in storage either as paper or in the form of books or pamphlets.

Iron and Steel Institute Is ASA Group Member

The American Iron and Steel Institute has become a group member of the American Standards Association. Standards information and other services of the ASA will be rendered to members of the Institute directly. The Institute became a Member-Body of the ASA several months ago.

The Institute is composed of 2,200 members, and every important steel company in the country is represented on its roster.

Quincy Bent, vice-president of Bethlehem Steel Corporation, is a director of the ASA, representing the American Society for Testing Materials, having been elected in 1929. L. S. Marsh, Inland Steel Company; J. O. Leach, Carnegie Steel Corporation; and Earl Smith, Republic Steel Corporation, have been named members of Standards Council.

The Institute has been active in standards work for the industry for years, and for some time has been represented in the safety code work of the American Standards Association.

Radio Waves Measured To National Standard

A national standard of radio frequency, of great value to transmitting stations in controlling the frequency of the radio waves they are sending out, has been established by the National Bureau of Standards.

It has been determined that a small increase in the frequency of radio waves transmitted by any station naturally occurs after a period of time. Although the change is slight, this increase in frequency, unless regulated, would result in interference between stations, one station invading the frequency limits assigned to another.

The national primary standard of radio frequency consists of two independent groups of piezo oscillators using especially prepared quartz plates operating under controlled conditions as regards temperature, pressure, humidity, and voltage.

The first group, known as Section I, was a commercial development and consists of four piezo oscillators with frequencies of 100 kilocycles per second. Section II, which was constructed at the Bureau, consists of two piezo oscillators, one having a fundamental frequency of 100 kilocycles per second and the other 200 kilocycles per second. An output of 100 kilocycles per second is obtained by means of a submultiple generator. A separate voltage supply system is pro-

vided for each section. Rectifiers furnish filament and plate voltages which are filtered and held constant by an automatically adjusted battery charging system.

The absolute frequency of one of the units of each section is checked daily against the Arlington time signals by a synchronous motor clock driven by the 100th submultiple of the frequency of the controlling unit. The daily measurements provide a check on the frequency variations of the standard over an extended period. Frequency variations over short intervals are shown by an automatic recorder of the frequency difference between one of the units of Section I and each of the other five units.

Submultiple frequencies from the primary standard are used in several laboratories of the Bureau. Standard frequencies of 5,000, 10,000, and 15,000 kilocycles per second are emitted six hours a week and are extensively used by radio manufacturers, radio transmitting stations, and testing laboratories throughout the United States in the calibration of standards of frequency. These transmissions are maintained in agreement with the primary standard.

Consider Standards For Electric Cookers

Conflict of opinion on design of electric cookers in Great Britain having decreased considerably recently, the question of standardization is coming to the fore, according to an article in the *Electrical Times*, London.

Advantages of standardization which would result to manufacturers of electrical cookers, in the opinion of *Electrical Times*, are

1. Increased economic production—including (a) purchase in bulk of raw material; (b) automatic and semi-automatic operation for component manufacture and assembly; (c) concentrated thought in a single specialized direction toward component improvement and economic manufacture; (d) reduced machine and assembly department overheads.

2. Negligible breakdown of components due to precision methods of manufacture.

Wholesalers and retailers would benefit from:

1. Low capital purchase price per cooker.
2. Standardized renewals with improved delivery.
3. Low revenue outlay on spares.
4. Decreased stores floor space for spares.
5. Reduction in hire or hire-purchase rentals, due to (a) low capital cost, (b) standardized renewals, (c) guarantee against preobsolescence.

ASA Library Has Revision Of U. S. Pharmacopoeia

The Tenth Revision of the United States Pharmacopoeia, published by authority of the United States Pharmacopoeial Convention, is now in the ASA Library and may be borrowed by ASA Members from the American Standards Association. The Pharmacopoeia presents standard tests and reference material for use in connection with drugs, officially approved by the U. S. Pharmacopoeial Convention.

This work was first published more than a hundred years ago, following the publication of several district pharmacopoeias.

It has often been referred to as one of the most important voluntary standardization efforts extant.

A. V. Bouillon Dies

A. V. Bouillon, secretary of the American Marine Standards Committee, Washington, D. C., died January 14 in Seattle, Wash., of pneumonia. In 1908 he was appointed the first superintendent of public utilities in Seattle, where he, a native of Belgium, had gone 19 years before.

As a result of the cooperation between the American Marine Standards Committee and the American Standards Association, Mr. Bouillon came in contact with many ASA committee members.

He had served as technical adviser for the U. S. Shipping Board Bureau of the Department of Commerce, and was chief engineer in charge of the construction of the *U. S. Nebraska*. Later, he served as city manager of Edmonton, Alta. He was a member of the American Society of Civil Engineers and of the American Society of Naval Architects.

Safety Code Committee Re-Elects Officers

C. E. Pettibone, National Association of Mutual Casualty Companies, was re-elected chairman of the ASA Safety Code Correlating Committee at its last meeting on January 10. L. F. Adams, National Electrical Manufacturers Association, was re-elected vice-chairman, and Cyril Ainsworth, Assistant Secretary, American Standards Association, was re-elected secretary.

The Safety Code Correlating Committee supervises and is responsible for all of the work on safety being carried on by committees under the

procedure of the American Standards Association. The Committee reviews safety codes recommended by the sectional committees, and reports its findings with recommendation for final action to the ASA Standards Council.

British Start Work on Empire Paper Standard

A conference on the standardization of paper sizes, convened by the British Standards Institution in October, agreed to appoint a subcommittee to consider the possibility of establishing one set of British Paper Standards which could eventually become Imperial Standards.

The decision was the result of a request from the Standards Association of Australia that a draft standard prepared by the Association be considered as a basis for Empire Standards on Paper Sizes.

Government departments have already reached standardization in size and color, and their standards are adopted throughout the whole government service in England, in the Dominions, and abroad. Municipalities are to a large extent following this lead.

The standards of the government departments and of the printing industry are in close agreement, and it was recommended that the bodies representing these interests issue one set of standards as British Standards. These standards could then eventually be used as the basis for Imperial Standards.

Standardization of the ream of 500 sheets was recommended to the conference, with the suggestion that the approval of the printing industry be obtained.

Urge Uniform Traffic Code to Reduce Auto Accidents

A uniform traffic code for the whole country was urged as the best method of reducing the number of deaths from automobile accidents by A. B. Barber, manager of the Transportation and Communication Department of the United States Chamber of Commerce, speaking at the Annual Meeting of the American Society of Civil Engineers.

Robert H. Ford, assistant chief engineer of the Rock Island Lines, and James J. Darcy, district engineer of the State Department of Public Works, speaking at the same meeting, recommended Federal supervision of highways and automobiles to save thousands of lives and billions of dollars every year.

Mrs. Emily Newell Blair Heads Consumers' Board

Mrs. Emily Newell Blair was appointed chairman of the Consumers' Advisory Board of the N.R.A. on February 19, succeeding the late Mrs. Mary Harriman Rumsey.

Mrs. Blair has for years been active in the Federation of Women's Clubs and the League of Women's Voters.

Germany Uses Safety Glass

Several different kinds of safety glass or substitutes are being offered in Germany to replace plate or window glass for use in automobile bodies, with a view to eliminating the dangers of broken glass in the event of a crash.

"Artificial glass" is a glass substitute possessing greater elasticity than silicate glass and does not shiver under any conditions.

A single layer of non-laminated safety glass is known as Securit. This consists of a sheet of plate glass which after having been brought to its final form is heated in special ovens to near its softening temperature and is then rapidly cooled.

The usual safety glass for automobiles consists of three layers, two outer layers of plate glass and a central layer of a material which does not shatter.—*Allgemeine Automobil Zeitung*, Aug. 25.

Change Small Size of Mayonnaise Containers

The Simplified Practice Recommendation for Glass Containers for Mayonnaise and Kindred Products R131-32 has been revised to change the smallest size container from 3 ounces to 4 ounces. The revision has been accepted by the industry and the revised list of sizes became effective January 1, 1935, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

Advance on Standard Car Controls Noted

There has been a distinct tendency for manufacturers to come into line in the matter of standardization of car controls, but 100 per cent standardization is still a long way off.

The reason is not far to seek. There are at present, for example, two distinct lines of thought so far as gearbox control is concerned; one band of designers still favors sliding pinions, while the

other pins its faith to boxes of the pre-selector type. The issue is still further complicated by a growing tendency to adopt centrifugal clutches and the like.

The matter, therefore, resolves itself into the need for standardization of controls which conform with one or other of the principles involved.

One of the most important considerations of all is that the respective positions of the clutch, brake, and accelerator should be standardized.—*The Light Car*, London, Feb. 1.

Chamber of Commerce Committee Approves Auto Size Standards

Representative business men, acting as a special committee of the Chamber of Commerce of the United States, have placed their approval upon uniform motor vehicle size and weight standards adopted by the American Association of State Highway Officials, says *Highway Highlights*, published by the National Highway Users Conference.

A statement issued by the Chamber hails this approval as "a further step in efforts looking toward solution of highway transport problems."

The special committee's report will go before the Chamber's annual meeting, to be held April 29 to May 2, for action.

The report includes a statement of reasons supporting the application of uniform standards.

Publish Revised Practice On Hypodermic Needles

Simplified Practice Recommendation R108-34, Dental Hypodermic Needles, a revision of the original recommendation formulated by the industry in 1929, is now available in printed form, according to an announcement of the Division of Simplified Practice of the National Bureau of Standards. Copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the American Standards Association for 5 cents each.

Jewelers Request Standard for Silver and Gold Combinations

The Jewelers Vigilance Committee has requested the cooperation of the National Bureau of Standards in the establishment of a Commercial Standard for Silver and Gold Combinations. It is expected that this project will cover nomenclature, definitions, weights and thicknesses of silver and gold combinations, tolerances, marking and labeling.

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